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ABSTRACT

This instructor's guide accompanies the self-paced student training modules on drywall available separately as CE 031 574. Introductory materials include a description of the components of the pre-apprenticeship project, discussion of teacher's role in students' completion of the modules, and scope and contents of Phase 2 training. Each of the 18 modules are briefly summarized according to this format: number of new vocabulary words; goal; performance indicators; overview and suggestions; description of any assignment(s) and/or job sheet(s) and listing of materials, tools, and equipment necessary to complete them; and supplementary references. An annotated bibliography contains references for further study and/or clarification of a topic. (YLB)

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LANE COMMUNITY COLLEGE

PRE-APPRENTICESHIP

PHASE 2 TRAINING

Instructor's Guide

Drywall

U.S. DEPARTMENT OF EDUCATION
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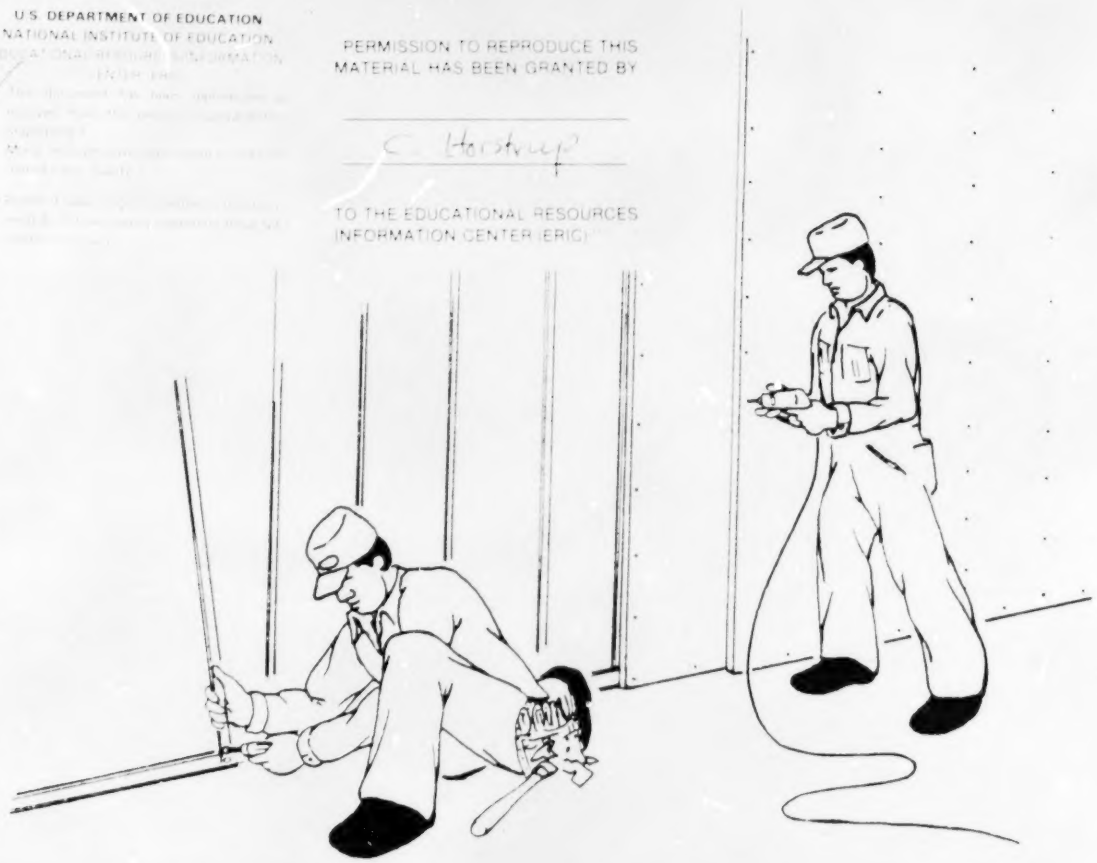

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Office of the President

July 27, 1981

On behalf of Lane Community College, I wish to express our pride and gratitude for the opportunity to participate in the development of the Pre-Apprenticeship training materials. We also wish to commend the Oregon Department of Education for its original concept and continued support; and, the Educational Linkages Component of the CETA Governor's Grant for funding.

The goals of this project are many, but none are more important than that of producing valid, understandable vocational curriculum material. We congratulate the tradespeople and production staff for thier accomplishments.

Finally, I recommend this material to anyone exploreing Pre-Apprenticeship as an entry into the vocational work world, with the hope and belief that it will go a long way toward producing skilled craftspeople who are dedicated to their work.

Sincerely,

Eldon G. Schafer

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Phase II

INTRODUCTION

This is the second phase of a designed multi-phase project of pre-apprenticeship study. Phase II begins in earnest the development of manipulative skills essential to the trade. It re-introduces and elaborates on many of the tools, materials and equipment set forth in Phase I, and introduces projects and assignments designed to build trade knowledge and trade manipulative skills.

The project consists of three major components:

1) INSTRUCTOR'S GUIDE, containing a brief summary of each of the trade modules, including the materials, tools and equipment necessary to complete the Job Sheets and/or Assignments; an annotated bibliography for further study and/or clarification of a topic.

2) Self-paced LEARNING MODULES for student study. The modules are designed to impart trade knowledge and skills to the student. Each module is comprised of the following:
   a) Cover Sheet--lists module title, goals, performance indicators
   b) Study Guide--gives directions for completion of module
   c) Introduction (optional)--explains why the module is important
   d) Vocabulary--lists and defines any new trade terms or technical words necessary for understanding the module's content
   e) Supplementary References--details where to go for further study
   f) Information--provides information and graphics covering the module's topic(s)
   g) Self Assessment (optional)--provides students an opportunity to test their comprehension
   h) Assignment (optional)--enables students to research further into the topic
   i) Job Sheet (optional)--lists materials and tools necessary to complete the tasks which are designed to develop manipulative skill
   j) Post Assessment (optional)--enables the instructor to test student comprehension

3) SURVIVAL or COPING SKILLS MODULES have been developed to promote

social skills development. These 43 modules elaborate on the topics introduced in Phase I and cover such topics as: Losing your Driver's License, Death in the Family, Divorce, Time Management, Buying a Home, Maintaining Credit, and other social skills which have a bearing on the quality of work life and personal satisfaction.

IMPLEMENTATION

It is essential during Phase II that the student develop the skills necessary to perform the tasks of the trade as outlined and demonstrated in the modules. For this reason, the instruction should be conducted by a skilled craftsperson from the trade or occupation who has the necessary teaching skills.

At the completion of Phase II, the trainee will have enough experience with the occupation to decide whether to continue with the training into Phase III, which will ultimately represent a career choice and entrance into apprenticeship.

Recommendations for successful module completion

This phase of pre-apprenticeship study requires the student to develop job skills which will enable him or her to be a productive worker or to decide against pursuing the trade as a viable career choice. To that end, the instructor should:

1) Realize that skill-building and development is dependent on repeated physical performance and self-confidence.

2) Provide a setting in which students are encouraged to develop skills at their own individual pace. Assessments are designed as tests of comprehension, not as tests of skills or trade abilities.

3) Coordinate the use of materials, tools and equipment so that each student can fulfill his or her potential.

4) Ensure that each student practices the trade skills in the accepted manner, and practices enough to develop skills to a professional trade standard.

5) Make arrangements for visitations (to stores, shops, jobsites, etc.) and ensure that students participate fully.

6) Grade or comment on individual Assignments and Assessments, to ensure students are aware of their progress.

7) Ensure that the trade skills and knowledge presented in one module are fully understood by the student before allowing him or her to continue to subsequent modules.

SCOPE

Trades developed for study in Phase II include:

Drywall	Bricklaying
Painting	Parts Counter
Plumbing	*Electrical
Floor Laying	*Welding
Plastering	*Auto Mechanic
Cement Finishing	*Carpentry
Tilesetting	

* Adapted from previously developed ILS material.

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MODULE TITLE: Drywall: The Material

NUMBER IN SERIES: 1st of 18

NEW VOCABULARY WORDS: 7

GOAL: Upon completion of this module, the student will:

1. Understand the major steps in processing raw gypsum for use in drywall.
2. Identify the major applications of gypsum drywall in conventional construction.
3. Identify and explain the advantages offered by gypsum drywall.

PERFORMANCE INDICATORS: The student will demonstrate a knowledge of this module by successfully completing a Self Assessment, an Assignment and a Post Assessment.

OVERVIEW AND SUGGESTIONS: This module presents basic information about the raw material used to make drywall panels, including a discussion of gypsum processing and construction applications and advantages. Scheduling a visit to a drywall manufacturing plant as well as viewing local uses of drywall could be helpful to students.

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

Student completes brief descriptions of processing gypsum, advantages offered by drywall and drywall applications.

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

None.

SUPPLEMENTARY REFERENCES:

Drywall Construction Workbook Part I. pp. 69-77.

Gypsum Construction Handbook. pp. 6-15.

Using Gypsum Board for Walls and Ceilings.

MODULE TITLE: Lifting, Carrying and Handling Drywall

NUMBER IN SERIES: 2nd of 18

NEW VOCABULARY WORDS: 6

GOAL: Upon completing this module, the student will:

1. Be able to identify and demonstrate proper and safe techniques for lifting drywall to avoid injury.
2. Explain the importance of careful handling of drywall to limit damage and loss of material.
3. Identify and explain the advantages to be gained from careful material placement on the jobsite.

PERFORMANCE INDICATORS: The student will demonstrate an understanding of the subject by successfully completing a Self Assessment, an Assignment, two Job Sheets and a Post Assessment.

OVERVIEW AND SUGGESTIONS: This module provides information on proper techniques for lifting and carrying drywall. It is important to stress the dangers of improper lifting, both short- and long-term. It is also important to point out how careful planning and proper lifting methods can prevent unnecessary work and damage to materials. Do not let the student skip practicing the proper lifting methods as this skill will be used throughout the student's training and career.

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

Student will complete a brief description of proper lifting techniques, preventing drywall damage and drywall storage.

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

The student will stack drywall sheets and properly lift and carry drywall sheet(s). Materials:

Several sheets of drywall (thickness is not important).

SUPPLEMENTARY REFERENCES:

Gyspsum Construction Handbook. pp. 88-89.

Drywall Construction Workbook, Part I. p. 124.

Using Gypsum Board for Walls and Ceilings. p. 6.

MODULE TITLE: Drywall Codes and Ratings

NUMBER IN SERIES: 3rd of 18

NEW VOCABULARY WORDS: 7

GOAL: Upon completion of this module, the student will:

1. Understand the function of building codes and ratings as they relate to drywall.
2. Be able to identify and explain the advantages gained by following building codes.
3. Be able to identify the types of activities covered by the building codes affecting the drywall trade.

PERFORMANCE INDICATORS: The student will successfully complete a Self Assessment, an Assignment and a Post Assessment.

OVERVIEW AND SUGGESTIONS: Information on how building codes function within the drywall trade is presented in this module. The student must recognize that there may be local variations to standard building codes. A visit to the building/planning department would provide students with an opportunity to ask questions about specific local differences in codes and inspection practices.

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

The student will answer a series of questions relating drywall installation to building code requirements. Students will need access to a copy of the current edition of Dwelling Construction Under the Uniform Building Code.

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

None.

SUPPLEMENTARY REFERENCES:

Drywall Construction Handbook: Part I. p. 156.
Part II. p. 6.

Uniform Building Code.

Dwelling Construction Under the Uniform Building Code. pp. 12, 31, 52, 70.

MODULE TITLE: Plans, Schedules and Specifications

NUMBER IN SERIES: 4th of 18

NEW VOCABULARY WORDS: 5

GOAL: The student will be able to identify, describe and explain the importance of the 8 major categories of working plans.

PERFORMANCE INDICATORS: The student will demonstrate knowledge by successfully completing a Self Assessment, an Assignment and a Post Assessment.

OVERVIEW AND SUGGESTIONS: This module introduces 8 major categories of plans about which students should know. Stress is placed on some sections, those most important or which are frequently encountered by the drywall mechanic. In addition to the included illustrations, a full set of plans and specifications would make a good classroom display.

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

The student will discuss various topics of schedules and specifications using short written responses.

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

None.

SUPPLEMENTARY REFERENCES:

Drywall Construction Workbook, Part I. pp. 114, 231.

Drywall Construction Workbook, Part II. pp. 8, 96, 99.

Standard Specifications. Part 6, Section 6B.

MODULE TITLE: Measuring and Marking Drywall

NUMBER IN SERIES: 5th of 18

NEW VOCABULARY WORDS: 9

GOAL: The student will be able to describe and demonstrate the techniques required to accurately and efficiently measure drywall.

PERFORMANCE INDICATORS: The student will demonstrate a knowledge of measuring and marking techniques by successfully completing the Self Assessment, 3 Assignments, 3 Job Sheet tasks and a Post Assessment.

OVERVIEW AND SUGGESTIONS: This module presents measuring and marking methods used in the drywall trade. It is important to stress the need for accuracy at this step in the installation process. The success of the other steps depends on correct measuring and marking. Give the student ample time to practice these tasks. Practice should be continued until consistent accuracy is developed.

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

The student will determine amounts of material required, and dimensions of each piece used or left over (scrap).

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

The student will measure and mark drywall sheets using reverse cut and angle cut methods and layout for an outlet box cutout. Materials:

drywall sheets
electrical outlet box (or template same size)
steel tape
4' T-square
chalkline
straightedge

SUPPLEMENTARY REFERENCES:

Gypsum Construction Handbook. p. 379.

Using Gypsum Board for Walls and Ceilings. p. 7.

Drywall Construction Workbook, Part I. pp. 56-63, 132-137, 152-155.

MODULE TITLE: Scoring, Breaking and Edge Treatments

NUMBER IN SERIES: 6th of 18

NEW VOCABULARY WORDS: 5

GOAL: The student will:

1. Be able to demonstrate the techniques used to properly cut drywall sheets. This will include rip, butt, angled, curved and cut out cuts.
2. Identify and properly apply water-resistant sealant to required drywall edges and surfaces.

PERFORMANCE INDICATORS: The student will successfully complete a Self Assessment, a Job Sheet and a Post Assessment.

OVERVIEW AND SUGGESTIONS: Proper cutting and edge treatment techniques are presented in this module. A clean, true edge means a better fit and less finishing time. This concept should be presented at the beginning of the discussion. A demonstration, showing what happens with poor cutting technique, would be useful. Lots of practice is very important so try to have plenty of drywall to work with. Scraps may be available from local jobs.

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

None.

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

Student will practice various types of cuts with different tools. Materials:

- drywall sheets
- water resistant sealant
- utility knife
- circle cutter
- drywall saw
- straightedge
- utility saw
- steel tape with guide and tip
- T-square
- rasp
- wall board ripper
- light box cutter
- hook bill knife

SUPPLEMENTARY REFERENCES:

Gypsum Construction Handbook. pp. 14, 110-112, 161.

Using Gypsum Board for Walls and Ceilings. pp. 7-8.

Drywall Construction Handbook, Part I. pp. 77, 132, 152, 156.

MODULE TITLE: Attaching Drywall with Nails

NUMBER IN SERIES: 7th of 18

NEW VOCABULARY WORDS: 6

GOAL: The student will be able to describe and perform the steps required to attach drywall with nails on vertical and horizontal wood-framed backing.

PERFORMANCE INDICATORS: The student will successfully complete a Self Assessment, a Job Sheet and a Post Assessment.

OVERVIEW AND SUGGESTIONS: This module presents information on nail selection, nailing patterns and spacing. Proper nailing technique is also discussed. As these tasks will be some of the most frequently performed on the job, scheduling time for an on-site visit to observe them would be valuable. Be sure to allow ample practice time for students to "get the feel" of nailing. The Job Sheet project may be tied into modules on measuring and marking, cutting and scoring and carrying and lifting drywall. Results from Job Sheet may be saved for task in module on edge and corner trim.

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

None.

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

The student will apply drywall to both wall and ceiling wood framing. This will require wood stud framing 16" o.c. for vertical applications (need not be a full 8' tall) and wood ceiling joists 16" to 24" o.c. Materials:

drywall--various thicknesses
hammer
tape measure
chalkline
wood stud framing
drywall nails

SUPPLEMENTARY REFERENCES:

Drywall Construction Workbook, Part I. p. 137.

Gypsum Construction Handbook. pp. 55, 107, 348-355.

"Nail Pop Control in Gypsum Drywall."

Using Gypsum Board for Walls and Ceilings. pp. 14, 16, 24.

MODULE TITLE: Attaching Drywall with Screws

NUMBER IN SERIES: 8th of 18

NEW VOCABULARY WORDS: 6

GOAL: The student will be able to identify, select and properly use screws to attach drywall to various base materials.

PERFORMANCE INDICATORS: The student will successfully complete a Self Assessment, an Assignment, a Job Sheet and a Post Assessment.

OVERVIEW AND SUGGESTIONS: Information on selection and installation of screws for attaching drywall panels is included in this module. An opportunity for students to observe screw attachment at a job site would be quite helpful to students. This should be done before they attempt the tasks on the Job Sheet. Results of Job Sheet work may be saved for later use with the module on edge and corner trim.

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

The student will practice locating framing member spacing and screw spacing "by eye." Hang butcher paper on an existing wall and have the student use a pencil to mark stud and screw placement.

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

The student will attach drywall panels to wood and/or metal framing using an electric screwdriver. Materials:

drywall sheets
assorted drywall screws
steel tape
electric screwdriver
bare wood framing
bare metal studwork
existing drywall surface

SUPPLEMENTARY REFERENCES:

Using Gypsum Board for Walls and Ceilings. p. 14.

Drywall Construction Workbook, Part I. pp. 145-148.

Gypsum Construction Handbook. pp. 51-54, 113-120.

MODULE TITLE: Attaching Drywall With Adhesives

NUMBER IN SERIES: 9th of 18

NEW VOCABULARY WORDS: 5

GOAL: The student will be able to select and apply adhesives, and attach drywall with adhesives.

PERFORMANCE INDICATORS: The student will successfully complete a Self Assessment, a Job Sheet and a Post Assessment.

OVERVIEW AND SUGGESTIONS: This module presents basic information for selecting and applying various adhesives to drywall panels, as well as panel installation. It is important to carefully discuss open time for adhesives, especially how much area to cover at one time and how fast the student must work. Be sure to remind student about warning labels and the need for good ventilation when using adhesives.

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

None.

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

The student will attach drywall panels to existing wood framing (metal framing optional). If time and material permits, a face ply layer may also be installed. Materials:

- drywall sheets
- drywall nails
- drywall screws
- drywall adhesives
- contact cement
- drywall hammer
- electric screwdriver
- adhesive applicator(s)
- wood framing
- metal studwork (optional)
- drywall base ply surface (may be surface covered for task 1)

SUPPLEMENTARY REFERENCES:

Using Gypsum Board for Walls and Ceilings. p. 14.

Drywall Construction Workbook, Part I. pp. 145-148.

Gypsum Construction Handbook. pp. 51-54, 113-120.

MODULE TITLE: Metal Edge and Corner Trim for Drywall

NUMBER IN SERIES: 10th of 18

NEW VOCABULARY WORDS: 5

GOAL: The student will be able to select and install metal edge and corner trim on drywall.

PERFORMANCE INDICATORS: The student will successfully complete a Self Assessment, a Job Sheet, and a Post Assessment.

OVERVIEW AND SUGGESTIONS: This module introduces the student to the various types of metal edge and corner trim used in drywall construction. You may wish to make up a classroom display of the various metal fabrications used as trims. The job(s) performed by students in the nail and screw attachment modules may be used in this module for the job tasks.

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

None.

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

The student will attach metal edge and corner trim pieces to existing framing or mockups that include window and/or door jambs and outside corners.

Materials:

assortment of metal trim pieces
drywall
hammer
electric screwdriver (optional)
crimping tool
steel tape
metal cutters
rubber mallet

SUPPLEMENTARY REFERENCES:

Using Gypsum Board for Walls and Ceilings. p. 33.

Drywall Construction Workbook, Part I. pp. 110-113.

Gypsum Construction Handbook.

MODULE TITLE: Powder-Actuated Tools

NUMBER IN SERIES: 11th of 18

NEW VOCABULARY WORDS: 6

GOAL: The student will be able to:

1. Identify the applications of powder-actuated fastening tools for drywall.
2. Describe the process of applying material to metal and masonry.
3. Be aware of safety precautions for using powder-actuated fastening tools.

PERFORMANCE INDICATORS: The student will successfully complete a Self Assessment, an Assignment and a Post Assessment.

OVERVIEW AND SUGGESTIONS: This module introduces the student to the operation of powder-actuated tools. Identifying the types of tools, powder loads and fasteners is discussed. Selection of proper powder loads and fasteners is related to the type of base material used. Please note that, in most situations, the student must be certified before using the tool itself. This is generally done by a representative of the various powder tool manufacturers. It is very important to stress the safety precautions required for using this type of tool.

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

The student will write out answers to several questions regarding powder-actuated tool use and safety.

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

None.

SUPPLEMENTARY REFERENCES:

Gypsum Construction Handbook.

Drywall Construction Handbook, Part I. pp. 87-100.

Powder-Actuated Tool Manufacturers Institute.

MODULE TITLE: Welding Applications in Drywall Construction

NUMBER IN SERIES: 12th of 18

NEW VOCABULARY WORDS: 12

GOAL: The student will be able to describe and explain:

1. Welding terminology.
2. Types of welding used in drywall work.
3. Applications of welding on drywall jobs.
4. Safety precautions for welding.
5. Use of templates/jigs for welded assembly work.

PERFORMANCE INDICATORS: The student will successfully complete a Self Assessment, an Assignment and a Post Assessment.

OVERVIEW AND SUGGESTIONS: This module introduces the student to the types of welding commonly encountered in the drywall trade. Various applications are also presented to the student. The student should be made aware of the safety precautions required when welding. A field visit to a job site where welding is taking place would help students more fully visualize the techniques used in welding for drywall.

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

The student will prepare written responses to several questions about welding.

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

None.

SUPPLEMENTARY REFERENCES:

Drywall Construction Workbook, Part II. pp. 233-260.

U.S.G. Light Steel Framing.

Welding Skills and Practices.

MODULE TITLE: Installing Cold-Rolled Channel Runner

NUMBER IN SERIES: 13th of 18

NEW VOCABULARY WORDS: 5

GOAL: The student will be able to mark the location, cut and install floor and ceiling metal channel runners.

PERFORMANCE INDICATORS: The student will successfully complete a Self Assessment, a Job Sheet and a Post Assessment.

OVERVIEW AND SUGGESTIONS: A detailed discussion of the correct procedure for laying out and installing cold-rolled channel runners is presented in this module. Fastener selection and spacing is related to the type of base material used. Reference should be made to the module on powder-actuated tools. The job for this module can be combined with the job for the module "Installing Metal and Structural Metal Studs," or the module "Self Supporting Drywall Partitions."

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

None.

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

The student will mark and install channel runners on floor and ceiling.

Materials:

metal runner stock

assorted fasteners--assorted nails for wood-concrete, powder-actuated fastener (optional), toggle bolts or screws (for gypsum ceiling) 1 1/4" Type S

steel tape
plumb bob
chalkline
hammer
powder-actuated tool (optional)
tin snips
framing square
power drill and steel bits
pencil or other marking tool
ladder and eye protection

SUPPLEMENTARY REFERENCES:

U.S.G. Light Steel Framing. #SA-510.

Drywall Construction Workbook, Part II. p. 58.

Gypsum Construction Handbook. pp. 29-33.

Using Gypsum Board for Walls and Ceilings. pp. 10-12.

MODULE TITLE: Self-Supporting Drywall Partitions

NUMBER IN SERIES: 14th of 18

NEW VOCABULARY WORDS: 5

GOAL: The student will be able to identify, describe and carry out the installation of semi-solid, solid, double-and triple-solid partitions.

PERFORMANCE INDICATORS: The student will successfully complete a Self Assessment, a Job Sheet and a Post Assessment.

OVERVIEW AND SUGGESTIONS: Four main types of drywall partitions are presented in this module. The proper sequence of steps for assembling and installing each type of partition is outlined and discussed. Allow ample time for the students to perform the tasks on the Job Sheet. You may wish to have the students perform the laminating process one day and the installation at a later time. You can use the job completed with the module "Installing Cold-Rolled Channel Runners" as the basis for the job in this module.

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

None.

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

The student will install a self-supporting drywall partition with metal runners and drywall ribs. Materials:

- drywall face panels (1/2" or 5/8")
- coreboards
- metal "J" or "L" runners
- embedding type joint compound
- 1 1/4" drywall-to-metal screws
- 12^{d} nails
- 8^{d} nails
- drywall application tools
- plumb bob or level
- joint spreader box or roller
- hand or powder activated tools for fastening runners
- screwdrivers (hand or power screw gun)

SUPPLEMENTARY REFERENCES:

Using Gypsum Board for Walls and Ceilings. pp. 27-28.

Gypsum Construction Handbook. pp. 33, 94, 210, 219, 227.

U.S. Gypsum Technical Trade Folder. #C515.

Drywall Construction Handbook, Part I. pp. 180, 193.

Handbook of Noise Control. Section 20.

MODULE TITLE: Installing Metal and Structural Studs

NUMBER IN SERIES: 15th of 18

NEW VOCABULARY WORDS: 6

GOAL: The student will be able to:

1. Identify and describe the advantages of metal studs over conventional wood studs.
2. Identify, describe and perform the steps required to install metal studs.

PERFORMANCE INDICATORS: The student will successfully complete a Self Assessment, a Job Sheet, and a Post Assessment.

OVERVIEW AND SUGGESTIONS: Metal studs for bearing and non-bearing applications are discussed in this module. The many advantages to the drywall trade are also presented. Samples of metal studs and the various tools used in the assembly process make good classroom displays. An on-site visit to a construction job using metal studs would prove helpful to students. Remind students of the cautions required when cutting metal studs. The Job Sheet included in this module may be combined with the Job Sheet from module "Installing Cold-Rolled Channel Runners."

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

None.

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

The student will assemble a non-load bearing wall or partition using metal studs and channel runners and screw assembly. (Clinch or weld assembly optional, if equipment is available.) Materials:

- metal runners and studs of matching dimensions
- Type "S" pan-head screws
- powder-actuated fasteners required to attach runner to floor and ceiling
- steel tape
- chalkline
- tin snips
- Phillips screwdiver
- level
- powder-actuated tool
- plumb bob
- electric screw gun
- clinch tool (optional)
- hammer
- welding outfit (optional)

SUPPLEMENTARY REFERENCES:

U.S.G. Light Steel Framing.

Gypsum Construction Handbook.

Drywall Construction Handbook, Part I. pp. 182-184.

Drywall Construction Handbook, Part II. pp. 58-65.

MODULE TITLE: Installing Carrying Channels for Suspended Ceilings

NUMBER IN SERIES: 16th of 18

NEW VOCABULARY WORDS: 5

GOAL: The student will be able to describe and perform the tasks required to hang carrying channel from concrete, steel decking I beams and metal joists.

PERFORMANCE INDICATORS: The student will successfully complete a Self Assessment, a Job Sheet and a Post Assessment.

OVERVIEW AND SUGGESTIONS: This module presents the steps involved in hanging carrying channel for the various types of suspended ceiling systems that require this type of channel. It is important to allow time for the student to practice the steps involved so that they become familiar with the techniques involved.

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

None.

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

The student will suspend carrying channel from a ceiling with pre-existing wire hangers. Materials:

- channel stock
- 9-gage hanger wire
- water level
- transit (optional)
- wire cutters
- chalkline
- ladders

SUPPLEMENTARY REFERENCES:

Gypsum Construction Handbook. p. 33.

Drywall Construction Workbook, Part II. pp. 154-159.

Using Gypsum Board for Walls and Ceilings. pp. 10-12.

MODULE TITLE: Furring Channel

NUMBER IN SERIES: 17th of 18

NEW VOCABULARY WORDS: 4

GOAL: The student will be able to identify and describe the different types of furring channels and their uses in the drywall trade.

PERFORMANCE INDICATORS: The student will successfully complete a Self Assessment, a Job Sheet and a Post Assessment.

OVERVIEW AND SUGGESTIONS: Several applications for furring channel in the drywall trade are presented in this module. The proper installation procedure for walls is discussed in detail. Ceiling applications are also discussed in the module "Installing Suspended Grid and Tile Ceilings." Job site visits showing situations where furring systems are used will enable students to see how irregular surfaces are successfully covered with drywall panels.

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

None.

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

The student will layout and attach furring channel to an existing wood-framed wall or partition. Then drywall panels will be attached to furring. Materials:

furring channel
Type "W" 1 1/4" screws
Type "S" 1" screws
1/2" drywall panel(s)
metal cutters
electric screwdriver
measuring tape
drywall knife

SUPPLEMENTARY REFERENCES:

Gypsum Construction Handbook. pp. 98-102.

Drywall Construction Handbook, Part II. pp. 150-152.

Using Gypsum Board for Walls and Ceilings. p. 12.

MODULE TITLE: Installing Suspended Grid and Tile Ceilings

NUMBER IN SERIES: 18th of 18

NEW VOCABULARY WORDS: 5

GOAL: The student will be able to:

1. Recognize and describe the various types of suspended grid ceilings.
2. Identify the materials required for each system.
3. Describe and demonstrate the steps required to lay out a grid system.
4. Describe and explain the steps involved in the installation of a grid ceiling system.

PERFORMANCE INDICATORS: The student will successfully complete a Self Assessment, an Assignment and a Post Assessment.

OVERVIEW AND SUGGESTIONS: Seven major suspended ceiling systems are presented in this module. The components involved in each system are listed. A detailed picture of each system has been included to help the student visualize how each system fits together. Working through examples for finding border distances for runners will help students on their Assignment page.

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

The student will write out the answers to several questions about suspended ceiling systems.

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

None.

SUPPLEMENTARY REFERENCES:

Drywall Construction Handbook, Part II. pp. 161-172.

Gypsum Construction Handbook. pp. 232-235.

BIBLIOGRAPHY

DRYWALL CONSTRUCTION HANDBOOK (Part I and II)
California State Department of Education
721 Capitol Mall
Sacramento, CA 97814
(1974 and 1975)

These volumes were designed as training material for the drywall industry. Material is presented in brief sections with good illustrations, and follow-up questions for each section.

DWELLING CONSTRUCTION UNDER THE UNIFORM BUILDING CODE
International Conference of Building Officials
5360 S. Workman Mill Rd.
Whittier, CA 90601
(1979 ed.)

A booklet which is a specially prepared sub-set of the UBC. It includes information necessary for those interested in building one- and two-story dwellings. Finding pertinent information is easier in this condensed version than in the UBC.

GYPSUM CONSTRUCTION HANDBOOK
United States Gypsum
101 S. Wacker Drive
Chicago, ILL 60606
(1978)

BIBLIOGRAPHY

A handbook full of detail descriptions and illustrations. Much of the information is quite technical; should be made available as a good reference; index is very useful.

HANDBOOK OF NOISE CONTROL
Cyril M. Harris
McGraw-Hill
New York
(1957)

A highly technical volume covering virtually all aspects of sound transmission and control. Contains informative sections on the effects of drywall-related materials on sound control.

INTERIOR WALL AND CEILING FINISHER
Occupational Analysis Series
Canada Employment and Immigration Commission
Ottowa, Canada
(1978)

A task analysis for wall finishing that includes drywall applications; identifies various tasks pe-formed and the accompanying tools necessary for the job. A useful reference for instructors.

BIBLIOGRAPHY

"NAIL POP CONTROL IN GYPSUM DRYWALL"
Technical Report C 517
United States Gypsum
101 S. Wacker Dr.
Chicago, IL 60606

A detailed description of nail pop causes and suggestions for repairs, as well as means of improving installation techniques to reduce nail pops. A good source of additional information for both student and instructor.

U.S.G. Light Steel Framing
SA-510
United States Gypsum
101 S. Wacker Dr.
Chicago, IL 60606
(1981)

One of a series of technical data pamphlets available from U.S.G. Most of the information is presented in table form; there are many useful illustrations included. Primarily a reference source for instructors.

USING GYPSUM BOARD FOR WALLS AND CEILINGS
Gypsum Association
201 N. Wells St.
Chicago, IL 60606
(1970)

BIBLIOGRAPHY

An illustrated pamphlet designed to show the many uses of gypsum drywall. Standard specifications of available material, framing and fastener spacings are included. Explanations are brief, but understandable.

WELDING SKILLS AND PRACTICES
Joseph W. Giachini and William Weeks
American Technical Society
Chicago, IL
(1976)

Well-illustrated book on welding. Provides a thorough introduction to welding applications, methods and proper techniques.